

The European perspective on biotechnology and its public perception, concentrating on GM technologies and nanotechnology as examples

Andrew Moore, PhD, Programme Manager for Science & Society, EMBO

In my talk, I will expand on the following themes:

Firstly, a few observations on human nature:

It is observed that in Europe, people tend to be less enthusiastic and more circumspect about advances in science and technology (than Americans). We need to respect and work with this phenomenon. Biotechnology, per se, is not under attack in Europe, as people are accepting of applications that are of clear benefit (notable examples are in healthcare and medications). GMOs, on the other hand (the very tools of biotechnology), have acquired a “bête noire” image, despite the obvious partial contradiction with the previous examples. Biotechnology faces big resistance in areas in which it has not (yet) produced things of great or widespread benefit (not only in Europe), and in which unknown possible risks are involved. In conclusion, members of society *are* rational and *do* look to the future; it would be wrong, as many observers do, to assume the converse. The real questions are: where do people get their information for reasoning, and their vision of the future?

Anatomy of a moratorium; how Europe came to ban GM foods and crops:

This started in 1997 with Austria’s ban on GM maize. It spread like wildfire to other EU states and already approved GM products. The moratorium was helped into being by a technological approach considered risky, hard sell tactics of a multinational company, public perception (an unwanted “harmful” revolution in food production), largely driven by strong public messages from the media and NGOs, which were positively responded to (in most countries) at political level – even in the European Commission.

Where we stand now with GMOs:

Most Europeans still reject GM food and crops. In the global context, Europe is completely out of picture as far as GM crop production is concerned. Major biotechnology companies have either cut GM research or moved out of Europe altogether; good scientists are leaving. Can anything be rescued?

The precautionary principle, staying in the game and protecting our interests:

How the precautionary principle is applied in practice can have a big impact on its usefulness. Being “out of the game” in GM crops may well be to our disadvantage, and has already disadvantaged people in poorer parts of the world. Europe no longer has a role to play in which products are made and consumed globally, and which examples of practise are developed as best models. In the tripartite of scientists/technologists, governments and NGOs, who really is protecting whom, and from what?

And what of nano(bio)technology?

Nanotechnology, a well established discipline, is becoming ever more multidisciplinary, and expanding into fields of relevance to, and drawing on, biology

and medicine. Classical nanotechnology has already brought us numerous “hidden” benefits (mostly in silicon) in already existing products; a more revolutionary field promises entities with design, production and active features at the molecular or atomic scale. Nanobiotechnology has a number of potential applications that could bring it into the same orbit as GM in terms of public perception: modification of existing biological entities for use in other systems, new technologies for genetic engineering, production of entities for ingestion or to treat/cure disease or enhance performance. Already new terms are being coined by some opponents or sceptics, such as “green goo” and the “coming to life sciences”. A global moratorium on nanotechnologies has already been called for by at least one NGO. How will this story develop? Europe as a whole does not yet have a stance on nanotechnology, but recent UK reports show the way, and the EC too is investing in safety studies.

Conclusions:

Europe is a patchwork of cultures and economies that react differently to the same stimuli. However, individual countries are increasingly aware of the bigger picture. New EU states and accession countries need to develop a science/technology base in which basic research is systematically linked to technological development and exploitation. Without this, a crucial motor for generating wealth and higher living standards will in future be missing. Capitalising on science is only possible in a society that is engaged in a timely way in discussions surrounding these advances.

Organisations that monitor technological (and scientific) progress, and stimulate debates on important matters, are essential. They too realise the need to be more proactive and analyse developments sooner. The arena of communication is a fast-moving jungle in which it is vital that facts of critical relevance and importance to society and its future are correctly reported (c.f. the latest affair of a football player). At the same time, messages to be communicated need to be attractively packaged for general consumption. There are many sectors working on this attractive packaging, and if scientists are not able to do it, others will.

The level of internationality, transnationality and co-ordination of many NGOs is not even approached by the scientific community, which is even nationally fragmented, un-coordinated and unsupportive of itself. Furthermore, whereas member states of the EU may look to Brussels for guidance, this can sometimes merely put a brake on developments at home. It is best if emerging matters can first be dealt with nationally with an open ear to national concerns...